FINAL MEETING SUMMARY

HANFORD ADVISORY BOARD
TANK WASTE COMMITTEE
March 3, 2004
Richland, Washington

Topics in this Meeting Summary

This is only a summary of issues and actions in this meeting. It may not represent the fullness of ideas discussed or opinions given, and should not be used as a substitute for actual public involvement or public comment on any particular topic unless specifically identified as such.

Welcome and Introductions

Committee vice chair, Leon Swenson, opened the meeting and reviewed the agenda.

The January meeting summary was adopted.

Tank Closure Environmental Impact Statement (EIS) Update

Howard Gnann, Department of Energy – Office of River Protection (DOE-ORP), gave a quick update on the Tank Closure EIS, stating that DOE-ORP just finished the review with the Department of Energy-Headquarters' (DOE-HQ) legal and environmental staff. DOE-ORP is working to incorporate the resulting comments into the EIS and then it will be released to the public. It should be released in June or before. It is possible that, if the EIS is released in June, the Hanford Advisory Board (Board) may request an additional board meeting.

Tank Retrieval Update: C-106 Closure Plan and S-112 Retrieval

Delmar Noyes updated the committee on the status of waste retrieval from single shell tank C-106, located in C-farm in the 200 East Area. The tank was built in 1944 to store mixed wastes resulting from reactor fuel reprocessing and waste separations conducted in PUREX and B Plants. The majority of the high-heat waste was removed in a previous large-scale sluicing campaign conducted in 1998-99. This current retrieval effort was begun in August 2003 and, after six acid batch additions and four sluicing campaigns, retrieval activities were completed in December 2003. DOE-ORP believes that the limits of technologies used in this demonstration have been reached. There was no evidence of further waste dissolution in the sixth acid batch and less than 0.3% waste solids were removed during the fourth sluicing campaign.

Delmar stated that the Certified Closure Plan was submitted to Ecology in January 2004. Currently displacement measurements and video mapping are being used to verify the final volume of tank waste residuals. The sampling and analysis of tank waste residuals is ongoing to support risk assessments. The Risk Assessment will be completed in April 2004. DOE-ORP believes there is 359 cubic feet of solid phase waste left in the tank. This is below the Tri-Party Agreement (TPA) target of 360 cubic feet.

Delmar gave a quick update on retrieval from tank S-112. 83% of the volume has been retrieved. The material isn't dissolving as fast as anticipated, which is pushing the timelines out.

Regulator Perspectives

Jeff Lyon, Ecology, stated that Ecology is glad that DOE-ORP has gotten to where they have with the retrieval, but Ecology is unsure what the data will look like. They have some indications that the margin of error could be as great as 20%. Ecology has a set up a panel to review the data. They are scheduled to meet on March 16th.

Jeff pointed out that the volume determination and the characterization sampling and analysis are two separate processes. The Tank Closure EIS and the Tank Closure plan are what will determine if it is acceptable to leave solids/residuals in the tank. Until Ecology gets the EIS, they cannot make a decision on the Closure Plan. Howard Gnann, DOE-ORP, stated that this is the first he has heard of the need for the EIS before the Closure plan will be approved. DOE-ORP is planning on putting a layer of grout into C-106 as part of the Closure Plan, which was essentially part of the permit that was submitted to Ecology in January 2004.

Committee Discussion

- Paige Knight asked about the remaining double shell tank (DST) space. Delmar replied that DOE-ORP is retrieving waste and using the DST space at the rate that was anticipated. There is roughly 200,000 gallons of remaining DST space. Paige wondered if DST space will be exhausted before the single shell tanks (SST) are

emptied. Howard replied that the goal is to fill up the DSTs and then take a break from SST retrieval until the Waste Treatment Plant (WTP) is completed and ready. DOE-ORP will keep the committee informed of progress in this area; they have a sequence that they are following and, if that goes as planned, then the DSTs will be filled in 2006. Delmar interjected that DOE-ORP is working on a space optimization strategy that will find the best utilization of the space available while maintaining reserved space for safety and emergencies. Moses Jarayssi, CH2M-Hill, stated that DST space is used as criteria when determining which SSTs to retrieve. Delmar assured the committee that, while there have been integrity issues with the DST in the past, there are currently programs and monitoring in place to monitor integrity and corrosion of the tanks.

- Ken Bracken stated that he is skeptical of the 359 cubic feet determination, as it is suspiciously close to the TPA requirement. Howard stated that the bottom line is that everything that can be removed from that tank has been removed. Ken stated that he would like to see a presentation to the Board on C-106, including both DOE-ORP and Ecology's take on where it is in the retrieval and closure process. Ken pointed out that, if the EIS is going to be ready in September, then it will be important that people understand both the method that was used and how this breaks out with the TPA requirements. Jeff stated that the presentation might also include a discussion on if Ecology thinks DOR-ORP has really hit the limits of technology.
- Dick Smith clarified that term "limits of technology" refers specifically to the limits of the technology used in C-106 and asked if the remaining material is insoluble and would require mechanical means to retrieve. Delmar replied that yes, this refers to the acid batches and sluicing used in C-106. Delmar responded that the analysis will make that determination and will help decide if mechanical removal of material is necessary.
- Al Boldt asked for clarification on how the determination that 359 cubic feet equals 1% of the tank was made. Suzanne Dahl stated that it was determined as an average of the total volume of all the tanks at Hanford. Al commended DOE-ORP for getting down to 0.51% of the actual volume of tank C-106. He stated that he is certain that the remaining volume is less than 0.1% process waste, consisting mostly of aggregate sand and gravel debris.
- Dick asked for clarification on the urgency for putting grout into the tank. Delmar stated that DOE-ORP wants to move forward with the cleanup and realizes that moving forward cannot be done without the proper permits. In looking at the National Environmental Policy Act (NEPA) DOE-ORP concluded that a stabilizing layer of grout will be necessary in either a landfill or radiological worker scenario. Ken pointed out that, based on the lawsuit in Idaho, this is ultimately a matter that would require not only state approval, but national approval as well. Suzanne agreed, stating that the state attorney general has repeatedly said that language of the judges ruling is such that potential changes to NEPA are needed to move forward with site specific decisions. It becomes clear that Congress understand this too, based on the withholding of the $64 million that would go towards closure activities. Delmar reminded the committee that there are also Resource Conservation and Recovery Act (RCRA) requirements that must be complied with, as well. Paige warned that the

public will automatically assume that if you grout one tank you are going to grout them all. She suggested that it might be time to address the "how clean is clean?" discussion. Ken responded that the "how clean is clean?" debate can run on forever. He suggested that a standard should be set, once it is clear how tank closure will fit with the overall closure of the Central Plateau. Delmar stated that one of the goals of the Tank Closure EIS is to integrate all the closure standards to ensure that the output is consistent with the overall Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process.

Waste Treatment Plant (WTP) Programmatic and Technical Issues

John Eschenberg, DOE-ORP, updated the committee on the programmatic and technical issues being managed at the WTP. The risk evolution on this project shows a positive trend. In April 2000 there were 103 risks being managed with an impact potential of $240 million. As of October 2003 there were 44 risks being managed with an impact potential of $91 million. There is another update to the risks and impact potential due in April 2004. Of the ten risks that the committee has been briefed on before, three have been closed. There may be a new risk to add, pre-treatment wash leach factors, but they are still determining whether or not this is a problem.

Pulse Jet Mixers (PJM) is the chosen technology for mixing waste in 40 vessels in the WTP. There are seven vessels, containing non-Newtonian fluids, where the PJM alone cannot mix the waste. The down select was completed on March 2nd and the recommendation is to use sparge tubes and recirculation pumps, along with the PJMs, to help keep the waste fluid and mixed. This issue has caused the target schedule to slip. DOE-ORP is currently evaluating the overall impacts to the project.

Another issue is the performance of the pre-treatment Ion Exchange Resin. The Cs Ion Exchange Column Resin (SL 644) works well and has been proven in half-scale tests. The issue is that during production it will be available from only a single source supplier. This adds significant risk to the project and long-term operations, as well as making it very expensive. Bechtel National, Inc. (BNI) is currently pursuing development and qualification of an alternate resin. This change to resin is not anticipated to necessitate a change to the hardware. This risk is no longer a technical risk, but is now a commercial risk.

John briefly mentioned three low risk issues that are nearing closure. These risks are:

- Formation of aluminum silicate in the Low Activity Waste (LAW) evaporator
- High sulfate concentrations in feed
- Noble metals impact on High Level Waste (HLW) melter life

He stressed that these are no longer viewed as technical challenges as they are nearing closure.

Regulator Perspective

Suzanne Dahl, Ecology, stated that she would be commenting on current issues/concerns with the WTP, rather than the technical issues. Ecology has concerns about the leach rates and has set up a meeting, in order to better understand the issue. They are also concerned about the fate and transportation of technetium and iodine through the system. They are trying to determine how much gets combined in the glass and how much is left in the secondary waste. All of the waste eventually gets disposed of; Ecology would like to know where the risk drivers are going to end up. One other issue that has come up is that, sometimes the slope under a tank system is not quite or just at the 1% grade the permits require. John replied that a 1% slope is minimal and the problem mostly lies in if things shift or move when they put the forms in. This is a very low priority issue, but it does indicate that they are designing to minimum standards and that is a problem. Ecology is worried about how this will project into other systems and designs.

Gail Laws, Washington Department of Health (WDOH), stated that WDOH has been following the PJM issue, possible associated air emission issues and how flow rates affect design. John replied that they do not anticipate an effect on air emissions. WDOH is also interested in the fate of iodine and technetium.

Committee Discussion

- Ken asked if there was anyone in the commercial sector testing the alternate resin, since BNI and Bechtel-Hanford developed it. He asked, since it is government money being spent to develop the alternative, will the government be producing it in the long-term, too? John replied that, for overall risk minimization, it is being developed and produced commercially.
- Al discussed his concern with sulfate content and handling in the system. Both Bulk Vitrification and LAW vitrification pursue programs that volatilize sulfate and nothing in the secondary waste treatment will take care of that amount of sulfate. John stated that there are two sulfate issues. One is sulfate collection on the equipment. The broader, site-wide, issue is how to get more sulfate in the waste form, in order to help minimize the number of cans used. There are a number of initiatives underway to address the sulfate issue. John stated that he is confident that the sulfate ends up in the glass form, but DOE-ORP needs to layout the strategy on that. Howard stated that it would be appropriate to have a more detailed discussion and presentation on the sulfate issues. There are a number of things going on there and it will take a while to lay them all out. This becomes increasingly important as the January 2005 supplemental technology milestone approaches.

  Another issue of concern to Al is that the Hanford Solid Waste Environmental Impact Statement (HSW-EIS) limits non-vitrified iodine to six curies. Other sites get 2.4%. The Hanford limit is so low, the treatment facilities need to be sure to provide an iodine trapping and disposal system. Al commented that none of the systems in the EIS will meet groundwater criteria based on this problem. Suzanne stated that many of these problems come from a more systematic view of how the waste eventually gets disposed of. Some of the risk assessments estimate that 80% of the iodine ends up in the glass; while others estimate that nearly none of it ends up in the glass, which means it ends up in the grout, which will only hold it for a couple hundred years.

Bulk Vitrification Development Program

Billie Mauss, DOE-ORP, briefly updated the committee on the status of the supplemental technology testing activities. There were some concerns with the full-scale glass block that was produced in July 2003. There were some discoloration and bubbling on top of the block. Some changes were made to the process and tested on the one-sixth scale. The changes included using a solid refractory (instead of sand), using a "bottoms-up" melt in conjunction with a feed while melt process and high plenum temperature. Some of the problems they were encountering included technetium salting and frothing and the "bathtub ring" effect. They were melting the waste from the top, capping it and heating through the sand, which produced vapors and salt up through the melt. The feed while melt increases the amount of waste that can go in a box but produces a "bathtub ring" effect. The higher plenum temperature mitigates the ring by keeping the glass volatile and smooth and causes the technetium to volatilize into the off-gas treatment system. Technetium released to the off-gas system is recycled in the mixer dryer. The next phase is to build a pilot scale plant, to be sure a waste form equivalent to WTP glass can be produced and to ensure it can handle a number of waste streams similar to the WTP. A waste performance plan has been laid out, to measure performance over the next couple years. The current plan is to get permits with the intent of producing the first box of real waste by the end of 2004.

Regulator Perspective

Suzanne stated that Ecology has been working to produce a waste form performance test plan, to ensure the bulk vitrification glass is as good as, or better than, WTP glass. Testing is done at research level, engineering level and full-scale stimulant level. They are hoping to issue a Research, Development and Demonstration (RD&D) permit for a pilot plant in the 200 Area by S-farm. They have to work with WDOH permit, too. These permits are similar to RCRA permits, but the RD&D permit is only valid for 365 days. The permit can be extended up to 3 years total, if needed. The point of the permit will be to hopefully get all the data needed to know everything possible about bulk vitrification, including how the systems works and how things occur physically within the system. Ultimately, the waste form that comes out of WTP and the bulk vitrification plant needs to be LAW so that it can be buried at the site. The RD&D permit should be out for public comment sometime around April or May 2004. It is possible that the public comment period would be extended, in order to cover the June Board meeting.

Committee Discussion

- Ken stated that he is concerned that the bulk vitrification waste form may end up classified as high level waste (HLW). He also wondered if the goal of melting the first box by the end of 2004 is feasible, considering the pilot plant still has to be designed and built before it can be operated. He also asked if a resolution had been found to the issue of the handling of incidental waste. Suzanne stated that Ecology is concerned that DOE-OPR operate within the criteria, pertaining to the definition of

HLW, set forth by the U.S. Nuclear Regulatory Commission (NRC). Billie stated that the solids contain most of the HLW content. The first box will be made using waste from tank S-109. They have already pumped some of the liquid out and have sampled it to make sure that it would meet Nuclear Regulatory Commission (NRC) criteria. (The idea behind pumping out only the liquid is that it simulates pre-treatment.)

- Norm asked that, since rhenium is more volatile than technetium, what kind of chemical composition results. Billie stated that it results in salts. She said she would get the recipe that was used, so that Norm could look to see how the reactivity compares with possible technetium reactivity. There is a calculation that is made to estimate the volatility of technetium, based on the rhenium reactions during the tests. Technetium will be used in the full-scale testing.
- Al asked about sulfate problems in the bulk vitrification testing. Billie stated that sulfate has not been a problem in the testing. They do not anticipate sulfate accumulation to be a problem, as they throw away the boxes after each melt. Al asked if the program would be testing for the level of sulfate incorporated into the glass. He stated that, with the high temperatures used in the process, there should be a high evolution of sulfate. He estimates that the level of sulfate incorporation into the glass will be low. Billie stated that sulfate evolution and incorporation is one of the things that they will be testing for.

Additional Supplemental Technologies

Steam reforming tests in Idaho

Billie stated that Idaho and Savannah River have continued to test the steam reforming technology. Savannah River has had problems with the agglomeration, as large amounts of fines were carried into the off-gas system. DOE-ORP has not gotten samples of the fines yet, but will be getting permitted to analyze the fines and the waste form. DOE-ORP and Idaho are working together and all the waste produced in the test is being sent to DOE-ORP for testing. Currently they don't have the mass balance data and are not looking at the off-gas.

Technical Report on Iron Phosphate glass

Al Boldt presented his initial review of Technical Position Paper, 2004-WED-001: Assessment of Iron Phosphate Glass as a Potential LAW Waste Form for the River Protection Project's Waste Treatment and Immobilization Plant and Supplemental Treatment (TPP). His review concluded:

- The TPP failed to identify the issue with ILAW glass and to perform a suitable evaluation of Iron Phosphate glass. The issue with the ILAW glass is that sulfate, technetium-99 and sodium oxide is only incorporated into a small volume of processed glass. The sulfate content of ILAW glass limits the amount of sodium oxide loading to approximately 13% by weight.

- The justification for the supplemental technology was to process high sulfate content wastes, however the current processes for both ILAW glass and bulk vitrification rely on the volatilization of sulfates to increase the sodium oxide loading.
- Volatilized sulfate, not incorporated into the glass, will be treated and disposed of as a secondary waste. The treatment and disposal of this secondary waste is not currently identified. Technetium-99 will volatilize with the sulfate and follow the same disposal path. The disposal of the resulting waste will result in exceeding the groundwater limits.
- The TPP used an average sodium oxide content of 16 iron phosphate glass compositions formulated to evaluate sulfate loading and corrosion behavior, this is not the composition, as identified by reference document PNNL-14251, capable of incorporating high levels of sulfate and sodium oxide.
- The TPP did not assume installation of the third ILAW melter. The benefits of the third melter are that it would increase the reliability of the output from the WTP. It would increase WTP total operating efficiency to 90% of the 45 MT per day cooling capacity. With three ILAW melters operating at 90% capacity, the cleanup mission would be completed in 2029.
- ILAW glass and bulk vitrification glass cannot incorporate the Hanford tank waste inventory of sulfate at the proposed 20 wt.% Na_2O. The assumed inventory of 3645 MT is derived from incomplete tank sampling and is not bounding. The "Best Basis Inventory" has a "global" estimated inventory of 5000 MT, which was derived from flow sheets and purchase records. Twice the sulfate means twice the volume of glass to dispose of.

Agency Perspective

Bill Hamel, DOE-ORP, clarified the assumptions used in the TPP. DOE-ORP has a study that states that 60-70% of the waste can be vitrified with sodium loading at 20%. They are currently evaluating the upper sodium load level by adding chemicals to the melt to increase the concentration. In reference to the claim that the wrong level of phosphate was used in the tests, they used an average of 23% in order to compare with the sodium loading. Bill stated that the data referenced in the initial review came from crucible level testing; while most of the data contained in the TPP comes from scale level testing. The initial review assumes that you can go from crucible level to full scale in a small amount of time that will not be prohibitive. That cannot be done and the initial review does not take that into account.

Addressing the concept of including a third, iron phosphate, melter at the WTP, Bill stated that it isn't as simple as just adding another melter. WTP modifications required to house an iron phosphate melter would be costly and difficult to implement. Iron phosphate glass behaves differently than WTP glass. Adding an iron phosphate melter would impact the process chemistry balance of the WTP. DOE-ORP also believes that the melter concept for iron phosphate glass will not meet glass melting rate requirements for WTP mission.

The technical risks are listed at the back of the TPP. Use of iron phosphate glass has major risks that will require significant investments to even evaluate technical viability including:

- Sodium waste loading in iron phosphate glass will not be sufficient to provide technical benefit to WTP operations.
- Iron phosphate glass, as conceived, will not meet performance requirements for shallow land burial.
- Technology program for development of iron phosphate glass will identify new technical issues requiring resolution.

Current DOE-ORP initiatives to improve the capability of WTP include:

- Conceptual design for second generation LAW melter with larger surface area, anticipated to increase glass production capability from 15 to 22 MTG/d
- Higher temperature glass test in LAW pilot melter, anticipated to increase glass melting rate potential from 15 to 18 MTG/d
- Engineering assessment to increase sodium waste loading with LAW glass
- WTP design capacity assessments
- Glass formulation studies for sulfate incorporation.
- Feed/glass formulation studies for sulfate evolution from melter.

Committee Discussion

- Leon asked if Ecology sees a problem with WTP glass that would justify stopping and going in a different direction. Suzanne replied that no, with the advancements that DOE has made, it seems that WTP glass is further along. The process issues have been identified and they are working to perfect it. Ecology has always known that a second process plan, including either a second plant or supplemental technology, would be needed. While Ecology is supportive of WTP glass, they also appreciate Al's effort to point out system plan problems and possible solutions.
- Ken commented that, if the sulfate and technetium must be handled and the system, as currently designed, doesn't handle it, does DOE-ORP or the contractor have a mass balance system in place, detailing where it is going and how it is handled. Bill responded that DOE-ORP is currently evaluating methods for incorporating more sulfate into the glass. They are also seeking funding from DOE-HQ to do more testing focusing on getting higher sodium oxide and sulfate into the glass. Ken asked if a system mass balance is available today. Bill replied that there are process models that show where things end up (either in the glass or the off-gas, etc.). The process models meet the contract specifications, but DOE-ORP wants to improve on this.
- John Eschenberg, DOE-ORP, stated that he thinks that the point of the committee's initial review wasn't to state that DOE-ORP should go with a different waste form, but was actually a request for a compelling story of how sulfate is being managed. Suzanne stated that a compelling argument doesn't have to be just about what sulfate does to the equipment or how much can be incorporated into glass, it needs to look at the whole system. The testers who are trying to drive the loading up must also be

aware of what else is being affected. The overall picture must be taken into account. John offered to present a flow sheet, taking a look at the mass balance and secondary waste streams the, the next time the committee meets.

HSW-EIS and Implications for DOE-ORP Activities

Delmar Noyes, DOE-ORP, stated that he has talked to Mike Collins and they are working on issuing a Record of Decision (ROD), regarding the Integrated Disposal Facility (IDF), on or around March 15th. The preferred alternative will be consistent with the ROD. They have already submitted a RCRA permit which is dependent on the ROD. DOE-ORP believes they can make up the time that was lost in getting the EIS out. If the ROD is issued on March 15th, then they will be on schedule. Construction studies will begin in April and physical construction will begin in the last quarter of fiscal year 2004. There is money in the budget for the first phase of construction, which will be done in a total of three phases. The facility is being built in the 200 E Area, between PUREX and the ash pile.

Regulator Perspectives

Suzanne stated that they have had the Notice of Intent meeting. In that meeting it was established that DOE has met the siting criteria for IDF. Ecology is currently reviewing the permit application. They had initially sent back 60-70 comments, most of which have now been resolved. They would like to see vadose zone monitoring in the soil under the landfill, which would need to go into the design immediately, so as not to hold up the permit. Ecology is also evaluating the cumulative risk of the material that will be going into IDF, in order to ensure that the entire inventory doesn't impact the groundwater. They intend to go forward with a risk management/risk assessment approach, rather than RCRA. Suzanne pointed out that DOE must have State Environmental Protection Act (SEPA) coverage to permit this landfill. Right now the SEPA requirements are being done through the EIS. Eventually the mixed waste trenches will be closed down, so Ecology is looking at the EIS to see how that will affect the permitting conditions, in order to make smart permitting decisions. They are looking at the data provided to be sure that the SEPA needs, like where the iodine is and how much iodine the EIS assumes is tied in the glass, are being met. The public review is planned for April 22 – July 20, 2004, but, from Ecology's standpoint, these dates may be questionable. The timing will depend on if another SEPA analysis is needed.

Suzanne noted that, as Ecology is reviewing the EIS they are seeing conflicting assumptions. They have sent DOE-ORP a list of technical questions and will not permit the facility without the answer to those questions. Some of these assumptions say only small amounts of iodine-129 is incorporated into the glass, other state that up to 80% is incorporated into the glass. John Swailes, DOE-ORP, stated that they do have data that can clarify the differences in the data and assumptions so that they will no longer seem conflicting.

Committee Discussion

- Paige expressed concern about cumulative impacts. Delmar stated that DOE-ORP is doing a performance review of the cumulative impacts. This review is very realistic and comprehensive. John Swailes stated that the Tank Closure-EIS does a pretty good job of compiling a comprehensive analysis. He also suggested taking a look at the composite analysis being performed with Pacific Northwest National Laboratory (PNNL). DOE-ORP is working with PNNL right now to be sure that they understand the modeling and all the possible effects. He did caution against putting too much faith in an analysis while ignoring the real world. That is why they are looking at the modeling and comparing those to what is happening in the real world.
- Penny informed the committee that the River and Plateau committee (RAP) will be looking at the scope of the composite analysis at a workshop in April. They are also intending to present a risk workshop at the June Board meeting. RAP has discussed the HSW-EIS and realized that RODs could be written as early as March 15th, so they are considering advice asking Ecology and EPA to do an independent review of the EIS.
- Paige suggested that delaying things a little to allow the public time to get a handle on the information in the EIS might benefit DOE, as it may save them the time and money of a lawsuit. Delmar pointed out that delays will impact getting waste out of the trenches. Suzanne made it clear that if the EIS does not meet Ecology's SEPA needs they will delay the SEPA permitting.
- Al stated that another showstopper is iodine-129. One issue is that the 5.1 curies the EIS permits in grout results in some of the fractions of contaminate levels at 0.6 or 60% of the maximum contaminant level (MCL). Another issue is that he is not aware of a path to get the iodine into the ILAW in the amounts anticipated. He stated that, based on the estimated inventory, he is certain that someone invented a system to account for the missing inventory. John Swailes replied that the iodine does tend to get incorporated into the glass and this actually happens at a better rate than initially anticipated. The iodine that is not incorporated into the glass goes into the off-gas system. The condensate gets recycled back to the facility until a 5 N solution is achieved, then it goes to the ultra-filter and ion exchanger. Al asked how the system can now be 100% effective at removing the iodine when there are plumes which seem to prove that the system is not that efficient. John stated that they are running simulations in the Duratex Labs, measuring the performance with various particulates and off-gas. They are running a small melter and making measurements of both the material being admitted and retained by the system and the paths. The mass balance flow sheet that will be presented to the committee will cover this path, too. Delmar commented that this will be updated on an on-going basis. As the path becomes more clear the assumptions can be updated to reflect what is happening in the real world. They will continue to monitor how much is actually incorporated where, in order to ensure that the amount being inventoried at IDF is not unacceptable.

M-45 Update

Delmar explained that M-45 is the Tri Party Agency (TPA) milestone series for the retrieval and closure of single shell tanks (SST). The negotiations were driven by requirements in M-45-00B and –00C; which set out to develop a process, integrating schedules and commitments in order to drive SST system waste retrieval and closure activities. The process would be applicable to all tanks DOE closes, making sure to integrate all the necessary processes, so that there is just one path to follow and tank retrieval and closure can move forward. Delmar noted that double shell tank (DST) space is a limiting factor. The major elements of the change package are:

- Agreed to complete the retrieval of C-farm tanks by 2006.
- Developed a pool of candidate SSTs for selecting retrievals, in addition to C-Farm tanks.
- Agreed to develop Waste Management Area (WMA) closure integration studies.
- Negotiations will be reopened in 2005, 2008, and 2012, in order to span the time period currently covered by M-45-00C.

The negotiations were completed in February 2004. Consultation with the tribes begins in March 2004 and the public review is planned to begin around the end of March 2004. Final incorporation of the changes into the TPA is expected in June 2004.

Regulator Perspectives

Laura Cusack, Ecology, stated that the contract is the important piece of the change package. It doesn't detail the process by milestones, but rather gives a layout of how the process should happen. There is a milestone for putting the process into place; once the process is begun DOE is to continue with the process until it is completed. The closure of C-farm tanks by 2006 is important so that C-farm can be closed altogether, for a better demonstration of progress.

Committee Discussion

- Paige asked if DOE or Ecology would ever consider the pros and cons of taking a tank out of the ground altogether. Suzanne stated that they avoided the discussion of the closure plan in this change package. The package goes as far as suggesting that DOE will send Ecology a closure plan, but did not specify what it would contain. Moses Jarayssi, CH2M-Hill, stated that the Tank Closure-EIS does analyze the ability to remove/lift the tanks. It turns out you cannot just lift it out of the ground, it must be mined out. That option is investigated in the EIS. If it ends up being one of the final options, then a demonstration must be made.
- Delmar stated that DOE-ORP wanted to be clear that they are intending on only doing one grout layer in tank C-106 at this time, as they realize they do not have a NEPA decision on this and have not had public conversations about doing it. Paige stated that it would be important to still have the option of removing the tank, even if it had been grouted. Dick asked what does DOE expect to learn by pouring grout into the tank. Delmar stated that the reason DOE-ORP wants to grout the tank is to

demonstrate the technique and physical process it would take to grout a tank of this size. Ken pointed out that the experience in Savannah River, where they have grouted two tanks, is that the grout does not mix with the contents of the tank. Moses stated that they are not making the assumption that it will mix.

- The timing of the public comment period caused the committee concern as it will fall between Board meetings. Laura will check into the possibility of either extending the comment period or making an exception for accepting Board comments after the close of the period.

Committee Work Planning

The committee reviewed its work plan, assigned priority numbers and revised topics based on new/pending issues; they also assigned new issue managers to some items.

Committee Business

The committee scheduled a committee call for March 15, 2004 at 3 p.m.

April Board Topics

- C-106 Tank presentation with video
- Ecology update on C-106 including the possibility of DOE-ORP reaching the limits of technology

Handouts

- Tank Waste Committee Meeting Agenda, March 03, 2004
- Tank Waste Committee – Hanford Advisory Board: Work Planning Table, May 2003
- M-45-00C Negotiations Update, CH2M-Hill & DOE-ORP, March 2004
- C-106 Retrieval and Closure Progress, Delmar Noyes, March 1, 2004
- Waste Treatment and Immobilization Plant (WTP) Programmatic and Technical Issues, John Eschenberg, March 3, 2004
- Waste Treatment Plant Top Technology Risks, March 2004
- Hanford Waste Treatment Plant Issue Paper, March 2004
- Bulk Vitrification Testing, Billie Mauss, March 2004
- Technical Position Paper, 2004-WED-001: Assessment of Iron Phosphate Glass as a Potential LAW Waste Form for the River Protection Project's Waste Treatment and Immobilization Plant and Supplemental Treatment, LK Holton/LE Demick/ WF Hamel, February 2004
- Initial Review, Technical Position Paper, 2004-WED-001: Assessment of Iron Phosphate Glass for ILAW, Al Boldt, March 3, 2004
- Assessment of Iron Phosphate Glass as a Potential LAW Waste Form for the River Protection Project's Waste Treatment and Immobilization Plant and Supplemental Treatment, William F Hamel, March 3, 2004

Attendees

HAB Members and Alternates

Al Boldt	Paige Knight	Richard Smith
Ken Bracken	Jeff Luke	Leon Swenson
Norm Dyer		

Others

John Eschenberg, DOE-ORP	Laura Cusack, Ecology	Jim Betts, BNI
Howard Gnann, DOE-ORP	Suzanne Dahl, Ecology	Suzanne Heaston, BNI
Bill Hamel, DOE-ORP	Jeff Lyon, Ecology	Moses Jarayssi, CH2MHill
Billie Mauss, DOE-ORP		Stacey Howery, EnviroIssues
Delmar Noyes, DOE-ORP	Gail Laws, WDOH	Penny Mabie, EnviroIssues
Erik Olds, DOE-ORP		Kim Ballinger, Nuvotec
Jim Rasmussen, DOE-ORP		Sharon Braswell, Nuvotec
John Swailes, DOE-ORP		John Linsing, Washington Group International